

What Is Claimed Is:

1. A random type recognition object for an identification apparatus, wherein identification particles are irregularly distributed within a 3D shape, and a positional value and a characteristic value of the identification particles distributed within the 3D shape are recognized from one or a plurality of directions by means of separate recognition means.

2. A 3D identification apparatus using a random type recognition object, comprising:

a random type recognition object having identification particles irregularly distributed within a 3D shape; and

recognition means for recognizing a positional value of the identification particles distributed in the random type recognition object from one or a plurality of directions on an orthogonal coordinate.

3. The 3D identification apparatus as claimed in claim 2, wherein the recognition means is an image recognition apparatus or a laser detector.

4. The 3D identification apparatus as claimed in claim 2 or 3, wherein the recognition means recognizes the positional value of the identification particles and a characteristic value of the identification particles at the same time.

5. An identification method using a random type recognition object, comprising:

a step of generating a random type recognition object wherein the random type recognition object having identification particles irregularly distributed within a 3D shape is completed;

a first recognition step wherein a positional value and a characteristic value on an orthogonal coordinate of the identification particles within the random type recognition object produced in the random type recognition object-generating step are recognized from one or a number of directions on the orthogonal coordinate to complete a first data set;

a second recognition step wherein the positional value and the characteristic value on the orthogonal coordinate of the identification particles distributed within the random type recognition object in which the first data set is completed in the first recognition step are recognized from one or a number of directions on the orthogonal coordinate to complete a second data set; and

a step of determining whether the random type recognition object is genuine by determining whether the first data set completed in the first recognition step and the second data set completed in the second recognition step are coincident with each other.

6. The identification method as claimed in claim 5, further comprising:

an eigen value-assigning step of assigning an eigen value to

the first data set completed in the first recognition step and storing the assigned eigen value; and

an eigen value-extracting step of searching a first data set coincident with the second data set completed in the second recognition step and extracting the eigen value assigned to the first data set whose data sets are coincident with each other,

wherein the step of determining whether the random type recognition object is genuine includes the step of comparing the eigen value extracted in the eigen value-extracting step with an eigen value that is already known to determine whether the random type recognition object is genuine.

7. A product authentication system wherein a purchaser determines whether a purchased product is genuine through a network, comprising:

a recognition apparatus for allowing the purchaser to recognize a characteristic value from an recognition object that is distributed together with a product in order to determine whether the product is genuine;

an authentication database for storing a data of the recognition object containing information on a product inputted by a seller and an authentication-processing result; and

an authentication server connected to the recognition apparatus through a network, wherein if the purchaser transmits the data of the recognition object recognized by the recognition apparatus through the network in order to make requests for determining whether the product purchased by the purchaser is

genuine, the authentication server compares the data of the recognition object with the data stored in the authentication database and then transmits information on a product coincident with the data of the recognition object.

8. The product authentication system as claimed in claim 7, wherein the authentication server comprises:

a data receiving part that receives the data of the recognition object recognized by the recognition apparatus, from the purchaser;

an authentication-processing unit that compares the data of the recognition object received from the data receiving part with the data stored in the authentication database to search information on a product coincident with the data of the recognition object; and

a data transmitting part that transmits the information on the product searched by the authentication-processing unit to the purchaser.

9. The product authentication system as claimed in claim 8, further comprising a history management unit that has a history received from the data transmitting part stored in the authentication database.

10. The product authentication system as claimed in claim 7, wherein the recognition object is a random type recognition object in which identification particles are irregularly distributed

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within a 3D shape, and a positional value and a characteristic value of the identification particles distributed within the 3D shape are recognized from one or a plurality of directions by means of the recognition apparatus.

11. The product authentication system as claimed in claim 7, wherein the recognition apparatus is a 3D identification apparatus and comprises:

a random type recognition object having identification particles irregularly distributed within a 3D shape; and

recognition means for recognizing a positional value of the identification particles distributed in the random type recognition object from one or a plurality of directions on an orthogonal coordinate.

12. A product authentication method in which a purchaser determines whether a purchased product is genuine through a network using an authentication system connected to the purchaser, comprising the steps of:

(a) generating a recognition object distributed together with the product so that the recognition object has a characteristic value;

(b) allowing a seller to recognize the characteristic value of the recognition object using a recognition apparatus, assign information on the product to the recognition object, store the characteristic value held by the recognition object and the information on the product assigned to the recognition object and

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then input those information to the authentication system;

(c) allowing the purchaser to recognize the characteristic value from the recognition object distributed together with the product using the recognition apparatus in order to determine whether the purchased product is genuine;

(d) allowing the purchaser to transmit a data of the recognition object recognized by the recognition apparatus to the authentication system through the network in order to make requests for determining whether the product is genuine; and

(e) allowing the authentication system to compare the data of the recognition object received through the network with the stored data to search information on the product coincident with the data of the recognition object and then transmit the information on the product.

13. The product authentication method as claimed in claim 12, further comprising the step of storing the transmitted history in the authentication system.

14. The product authentication method as claimed in claim 12, wherein the recognition object has an index assigned thereto, and

if the purchaser transmits the data of the recognition object recognized by the recognition apparatus and its index to the authentication system through the network in order to make requests for determining whether the purchased product is genuine, the authentication system searches data of the recognition object that is coincident with the index received through the network to

determine whether the searched data of the recognition object and the data of the recognition object received through the network are coincident with each other and then transmits the determination result.

15. The product authentication method as claimed in claim 12, wherein the step (a) comprises generating a random type recognition object in which identification particles are irregularly distributed within a 3D shape, and a positional value and a characteristic value of the identification particles distributed within the 3D shape are recognized from one or a plurality of directions by means of the recognition apparatus.

16. The product authentication method as claimed in claim 12, wherein the step (b) comprises recognizing a positional value and a characteristic value of identification particles within the random type recognition object produced in the step (a) from one or a plurality of directions on an orthogonal coordinate.

17. The product authentication method as claimed in claim 12, wherein the step (c) comprises recognizing a positional value and a characteristic value of identification particles within the random type recognition object produced in the step (a) from one or a plurality of directions on an orthogonal coordinate.

18. The product authentication method as claimed in claim 12, wherein the recognition apparatus is a 3D identification apparatus and comprises:

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a random type recognition object having identification particles irregularly distributed within a 3D shape; and

recognition means for recognizing a positional value of the identification particles distributed in the random type recognition object from one or a plurality of directions on an orthogonal coordinate.

19. The product authentication method as claimed in claim 12, further comprises the step of allowing a purchaser to pay the price of using the authentication system.